

REMARKS

This Amendment is responsive to the Office Action dated November 16, 2009. In this Amendment, claims 1 and 11 have been amended. These amendments add no new matter. Support for these amendments may be found variously throughout the specification and particularly in Figures 1 and 2. Claims 1-16, 23-28, 47-49, 51 and 52 remain pending in the application. Reconsideration and allowance of the pending claims are respectfully requested.

Claims 1-15, 23-27 and 57 are rejected under 35 U.S.C. § 102(b) as anticipated by Kuroda et al. (U.S. Patent No. 6,342,754). The rejection is respectfully traversed.

Kuroda teaches an image-forming apparatus that includes electron-emitting devices, an image-forming member and spacers arranged in an envelope. Each of the spacers has a substrate and a charge-reducing film formed thereon. The charge-reducing film has a first film containing a nitrogen, a transition metal and an element selected from aluminum, silicon and boron and a second film of an oxide arranged on a surface of the first film. The oxide is an oxide of the transition metal and contains a transition metal and aluminum, silicon or boron.

Amended claim 1 now recites:

A flat-type display, comprising:

a first panel and a second panel which are bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state;

a spacer extending, as viewed in cross-section, longitudinally in the space between the first panel and the second panel to terminate in a first end spacer surface and an opposite second end spacer surface and laterally between a pair of spaced-apart spacer side walls to define a thickness therebetween;

a first electrode member fabricated as a unitary construction from an electrically-conductive material and extending across and connected to one of the first panel and the second panel, the first electrode member, as viewed in cross-section, formed with a recess having a pair of facially-opposing recess side walls and a recess bottom wall interconnecting the pair of recess side walls;

a second electrode member fabricated from an electrically-conductive material, extending across and connected to a remaining one of the first panel and the second panel;

a first low-melting-point metal layer and a second low-melting-point metal layer, each one of the first and second low-melting-point metal layers being fabricated from an electrically-conductive material having a low melting point; and

a first conductive material layer and a second conductive material layer, each one of the first and second conductive material layers being fabricated from an electrically-conductive material,

wherein the spacer electrically connects the first and second electrodes,

wherein the first end spacer surface, the first conductive material layer and the first low-melting-point metal layer are disposed in the recess with the first conductive material layer disposed between and in contact with the first end spacer surface and the first low-melting-point metal layer and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall and

wherein each one of the pair of recess side walls is in contact with the first conductive material layer and the first low-melting-point metal layer while the pair of spacer side walls at a first end portion of the spacer positioned inside the recess being spaced apart from the pair of recess side walls.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each and every element of claim 1, as amended. Specifically, it is respectfully submitted that the applied art fails to teach a first electrode member fabricated as a unitary construction from an electrically-conductive material and formed with a recess having a pair of facially-opposing recess side walls and a recess bottom wall interconnecting the pair of recess side walls. Furthermore, it is respectfully submitted that the applied art also fails to teach that the first end spacer surface, the first conductive material layer and the first low-melting-point metal layer are disposed in the recess with the first conductive material layer disposed between and in contact with the first end spacer surface and the first low-melting-point metal layer and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall. Additionally,

it is respectfully submitted that the applied art also fails to teach that each one of the pair of recess side walls is in contact with the first conductive material layer and the first low-melting-point metal layer while the pair of spacer side walls at a first end portion of the spacer positioned inside the recess being spaced apart from the pair of recess side walls. Thus, it is respectfully submitted that claim 1 is allowable over the applied art.

Amended claim 11 now recites:

A method for manufacturing a flat-type display, the flat-type display comprising a first panel and a second panel bonded to each other in their circumferential portions and having a space between the first panel and the second panel, the space being in a vacuum state, a spacer extending, as viewed in cross-section, longitudinally in the space between the first panel and the second panel to terminate in a first end spacer surface and an opposite second end spacer surface and laterally between a pair of spaced-apart spacer side walls to define a thickness therebetween, a first electrode member fabricated as a unitary construction from an electrically-conductive material and extending across and connected to one of the first panel and the second panel with the first electrode member, as viewed in cross-section, formed with a recess having a pair of facially-opposing recess side walls and a recess bottom wall interconnecting the pair of recess side walls, a second electrode member fabricated from an electrically-conductive material, extending across and connected to a remaining one of the first panel and the second panel, a first low-melting-point metal layer and a second low-melting-point metal layer with each one of the first and second low-melting-point metal layers being fabricated from an electrically-conductive material having a low melting point and a first conductive material layer and a second conductive material layers with each one of the first and second conductive material layers being fabricated from an electrically-conductive material, with the spacer electrically connecting the first and second electrodes, the method comprising the steps of:

positioning the first end spacer surface, the first conductive material layer and the first low-melting-point metal layer in the recess with the first conductive material layer disposed between and in contact with the first end spacer surface and the first low-melting-point metal layer and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall and each one of the pair of

recess side walls being in contact with the first conductive material layer and the first low-melting-point metal layer while the pair of spacer side walls at a first end portion of the spacer positioned inside the recess being spaced apart from the pair of recess side walls;

positioning the second conductive material layer on the second end spacer surface; and

positioning the second low-melting-point metal layer in contact with and between the second conductive material layer and second electrode member.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each and every element of claim 11, as amended. Specifically, it is respectfully submitted that the applied art fails to teach a first electrode member fabricated as a unitary construction from an electrically-conductive material formed with a recess having a pair of facially-opposing recess side walls and a recess bottom wall interconnecting the pair of recess side walls. Furthermore, it is respectfully submitted that the applied art also fails to teach a method comprising the steps of positioning the first end spacer surface, the first conductive material layer and the first low-melting-point metal layer in the recess with the first conductive material layer disposed between and in contact with the first end spacer surface and the first low-melting-point metal layer and the first low-melting-point metal layer being in contact with and disposed between the first conductive material layer and the recess bottom wall and each one of the pair of recess side walls being in contact with the first conductive material layer and the first low-melting-point metal layer while the pair of spacer side walls at a first end portion of the spacer positioned inside the recess being spaced apart from the pair of recess side walls. Thus, it is respectfully submitted that claim 11 is allowable over the applied art.

Claims 2-10 and 57 depend from claim 1 and includes all of the features of claim 1.

Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Claims 12-15 depend from claim 11 and includes all of the features of claim 11. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 11 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claims 6 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda as applied to claim 1 and presumptively claim 11 and further in view of Spindt (U.S. Patent No. 5,990,614). The rejection is respectfully traversed.

Spindt discloses a flat-panel display having a temperature-difference accommodating spacer system.

As discussed above, claims 1 and 11 are allowable over Kuroda. Spindt fails to cure the deficiencies of Kuroda. Thus, claims 1 and 11 are allowable over Kuroda and Spindt.

Claims 16 and 28 depend from claim 11 and includes all of the features of claim 11. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 11 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

Claim 47 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda as applied to claim 1 and further in view of Toyota et al. (U.S. Patent Publication No. 2003/01900722). This rejection is respectfully traversed.

Toyota teaches a cold cathode field emission device.

As discussed above, claim 1 is allowable over the combination of over Kuroda. Toyota fails to cure the deficiencies of Kuroda. Thus, claim 1 is allowable over Kuroda and Toyota.

Claim 47 depends from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that the dependent claim is allowable at least for the reason claim 1 is allowable as well as for the features it recites.

Withdrawal of the rejection is respectfully requested.

Claims 48, 49, 51 and 52 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda as applied to claims 1 and 11 and further in view of Niibori et al. (U.S. Patent Publication No. 2004/0075378). This rejection is respectfully traversed.

Niibori teaches an image display apparatus that includes a first substrate provided with a plurality of electron emitting elements in a vacuum container, a second substrate positioned opposite to the first substrate in the vacuum container with the second substrate being irradiated with electrons emitted from the electron emitting elements, at least one spacer disposed on either one of the first and second substrates to provide an atmospheric pressure

resistant structure of the vacuum container with the spacer being interposed between the first and second substrates and having a longitudinal direction in a direction substantially perpendicular to an opposing direction of the first and second substrates and a lateral wall positioned inside an external periphery of at least either one of the first and second substrates to provide a sealed structure of the vacuum container. A first support member for supporting the spacer is provided outside an image display area which is formed between an area of the electron emitting elements of the first substrate and an electron-irradiated area of the second substrate while a second support member is provided outside the image display area of either one of the first and second substrates. The first support member and the second support member are joined together.

As discussed above, claims 1 and 11 are allowable over Kuroda. Niibori fails to cure the deficiencies of Kuroda. Thus, claims 1 and 11 are allowable over Kuroda and Niibori.

Claims 48 and 49 depend from claim 1 and includes all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

Claims 51 and 52 depend from claim 11 and includes all of the features of claim 11. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 11 is allowable as well as for the features they recite.

Withdrawal of the rejection is respectfully requested.

CONCLUSION

It is respectfully submitted that the pending claims are believed to be in condition for allowance over the prior art of record. Therefore, this Amendment is believed to be a complete response to the outstanding Office Action. Further, Applicant asserts that there are also reasons other than those set forth above why the pending claims are patentable. Applicant hereby reserves the right to set forth further arguments and remarks supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

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Respectfully submitted,

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